

# NETWORKS

## FAQ

**Q** What exactly is X10 and how is it used in home automation?

**A** X10 is a protocol used to talk to home automation products over power lines and, more recently, wirelessly. Using the protocol, controlling devices can send a signal to turn on a lamp, close windows or turn on the heating.

There are many types of X10 products, from plugs that you connect to a wall socket and into which you plug ordinary devices, to replacement light switches. You'll see a full range at [www.simplyautomate.co.uk](http://www.simplyautomate.co.uk).

X10 devices can be controlled in several ways. At the simplest, switches can be used to turn devices on or off remotely, or dim lights. Motion sensors can also be used to turn on lights automatically, when you open the door, for example. More complex behaviour can be achieved by using a PC and software to control your home when you are away. These techniques can be used to make it look like someone is in to deter robbers.

Simple light switches are quite cheap to replace, but automating an entire home can be difficult and expensive.

**David Ludlow**  
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## LEVELONE WCS-2060

★★★★★

£228 inc VAT

From [www.broadbandbuyer.co.uk](http://www.broadbandbuyer.co.uk)

Monitoring your home with a network camera is a good way to increase security or, in the event of a break-in, provide valuable evidence to the police. LevelOne's motorised pan-and-tilt WCS-2060 is one of the most flexible cameras you can get. This webcam has both wired and wireless network connections, so placement is never an issue. What's more, because it runs its own web server, it doesn't need a PC to be turned on, and you can access live video from any internet-connected PC. This also makes it incredibly easy to configure.

First, you need to connect the WCS-2060 to your wired network and run the setup utility on the bundled CD. This scans your network for cameras and lets you change settings, including IP address and wireless network settings. Wireless networks have to be configured manually with the ESSID and encryption settings, so you'll need to have these to hand. It's a shame that there's no scanning utility to look for available networks.

Regardless of whether you use this camera on a wired or wireless network, its video feed is managed and viewed through the web interface. It's clean and simple to use, and you can password-protect access. The WCS-2060 defaults to a video resolution of 640x480. Quality was very high, and we were able to pick out detail easily.

If you plan to view video over the internet, you'll probably find that this video setting is too high to stream properly and you'll need to adjust it. As well as changing



the resolution, you can either choose the video bandwidth from between 20Kbit/s and 4Mbit/s, or select one of the arbitrarily named fixed video quality settings (good, standard or excellent). We found that a resolution of 320x240 and a video bandwidth of 64Kbit/s proved a good trade-off between speed and quality.

One of this camera's strengths is its motorised pan and tilt. You can either control these manually and move the camera to view what you want, or you can set predefined points to which you can jump directly. These points can be put in a list and used to set the camera's patrol route, so that it scans an area constantly.

Motion detection is easy to implement, and the camera can be set to send still photographs to an FTP server when triggered. This is useful if you want to catch a criminal at work. If you like, an email can be sent so that you know that your home has been invaded straightaway.

The camera can't capture video in this mode and you'll need to install the IP CamSecure software, which can monitor up to 64 cameras. Unfortunately, this dated-looking application is tricky to use and not very reliable at capturing video.

LevelOne's WCS-2060 isn't perfect, and an optical zoom would have been nice, but it's good value and gets all the basics right. If capturing video easily is important to you, though, the CamSecure application will disappoint.

*David Ludlow*

### SUMMARY

- ✓ Easy to use
- ✓ Great video quality
- ✗ CamSecure software is poor

WEBCAM 640x480 resolution, 30fps, integrated microphone, Ethernet, WiFi (802.11g) interfaces  
PART CODE WCS-2060  
DETAILS [www.level1.com](http://www.level1.com)

## Also consider...

### BUFFALO WBMR-G125

★★★★★

£48 inc VAT

From [www.lambda-tek.com/componentshop](http://www.lambda-tek.com/componentshop)



It may be 802.11g, not Draft-N, but the Buffalo WBMR-G125 provides fantastic speeds for a very low price. It's also simple to configure, taking just a few minutes. The Buffalo CardBus adaptor will improve your speeds further and costs a mere £18 extra. Its throughput at 25m also rivals some of the more expensive Draft-N routers.



WIRELESS ROUTER 802.11g (125Mbit/s), 4x 10/100 Ethernet ports, WAN port (ADSL2+ modem), UPnP, QoS  
PART CODE WBMR-G125  
DETAILS [www.buffalotech.com](http://www.buffalotech.com)  
FULL REVIEW Nov 2007



### LINKSYS WAG325N Wireless-N ADSL Gateway

★★★★★

£77 inc VAT

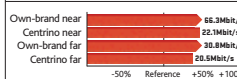
From [www.lambda-tek.com/componentshop](http://www.lambda-tek.com/componentshop)



Linksys's WAG325N Wireless-N ADSL Gateway managed the fastest transfer rates we've ever seen from wireless kit in our tests, and its range was excellent, too. Centrino performance was equally impressive, and we had no trouble connecting at 25m. This router was simple to set up and configure, and is excellent value.



WIRELESS ADSL ROUTER Draft 802.11n (300Mbit/s), 4x 10/100 Ethernet ports, WAN port (ADSL2+ modem), UPnP, QoS  
PART CODE WAG325N  
DETAILS [www.uk.linksys.com](http://www.uk.linksys.com)  
FULL REVIEW Sep 2007



## DOMIA

### Bye Bye Standby Online Controller



£43 inc VAT plus £40 per year  
From [www.simplyautomate.co.uk](http://www.simplyautomate.co.uk)

Domia's Bye Bye Standby Energy Saving Kit (which we reviewed in *What's New, Shopper 233*) is a simple way to save money. It comes with three Appliance Switches into which you plug your devices or multi-way adaptors and then toggle power using an RF remote control, saving electricity by not powering standby modes. With the Online Controller, you can control your Appliance Switches over the internet.

The Controller is a small box that plugs into your broadband router via Ethernet. It doesn't come with any Appliance Switches, so you need to buy them individually or opt for the Energy Saving Kit, which costs £26 including VAT.

Once you've registered your controller with the simple website, you just need to add your Appliance Switches by device code (visible on the front of the plugs). You can give each device a name, location and icon, such as a picture of a TV.

The webpage then displays all your devices, and you can turn them on or off with a



single click. This might seem an expensive way to control power to devices that you won't use when you're not in, but the Online Controller can also be used for automatic home control.

By configuring scenes, which control multiple devices at once, and scheduling them, you can set times when you want devices to go on or off. If you plug lamps into your Appliance Switches, you can make it look like someone's home when you're out. This makes the Controller more about home automation than power saving, but it's not flexible enough for this. The basic range of appliance switches means you're limited to

toggling power to devices with plugs. If you want to do this, simple timer plugs are easier and don't have a yearly charge.

For full home automation, you need devices that use the X10 protocol (see FAQ). If you want to save power, the Energy Saving Kit is better value.

David Ludlow

#### SUMMARY

- ☒ Simple to use
- ☒ Expensive
- ☒ Not very flexible

HOME AUTOMATION KIT Controller with Ethernet port, requires Appliance Switches  
PART CODE N/A  
DETAILS [www.byebyestandby.co.uk](http://www.byebyestandby.co.uk)

## D-LINK ANT24-0700



£60 inc VAT  
From [www.lambda-tek.com/components](http://www.lambda-tek.com/components)

Most wireless routers and wireless adaptors come with low-powered antennas, which are often the cause of poor signal range. If you need to improve your reception, upgrading the antenna to a high-powered one such as D-Link's ANT24-0700 can make the world of difference.

Most routers and adaptors have 2dBi antennas, so this 7dBi model is a lot more powerful. To use it, you'll need a router or network adaptor with RP-SMA or RP-TNC connectors (check your manual for details). It will also work only with 2.4GHz networks, including 802.11b, 802.11g and most 802.11n WiFi networks.

Where you use the antenna depends on your problem. Upgrading the router makes sense if you've got multiple computers with poor reception. Upgrading an adaptor makes more sense if you've got one computer that's suffering. In both cases, remember that you are going to need to replace all existing antennas, so it can be expensive for MIMO or dual-antenna products.



We upgraded our bog-standard 802.11g single-antenna reference wireless router. This isn't a bad router, but we could only get a signal from it at 1m and 15m (not 25m) using its standard antenna. Installing the ANT24-0700 didn't make a difference to throughputs at 1m or 15m, but we were able to get throughputs of 4.07Mbit/s at 25m when using our Centrino notebook. This is enough for decent web browsing, and it could turn a PC with a stuttering connection into a usable one.

This antenna can connect directly to a router or adaptor, or it can be fitted to its stand. This gives you a wider range of positioning options, including wall mounting or using its magnetic feet to 'stick' it to a metal surface.

It's expensive, though. If you have more than one antenna to replace then you should go for a better router, such as Linksys's WAG325N Wireless-N ADSL Gateway (see 'Also consider...' left). Otherwise, Hawking's 7dBi antenna (£25 from [www.maplin.co.uk](http://www.maplin.co.uk)) has similar performance and is cheaper.

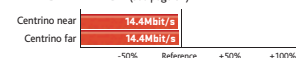
David Ludlow

#### SUMMARY

- ☒ Flexible design
- ☒ Expensive
- ☒ Large

HI-GAIN ANTENNA 7dBi antenna, omni-directional, RP-SMA and RP-TNC connectors, 326x120x120mm (HxWxD including base)  
PART CODE ANT24-0700

#### PERFORMANCE (see page 62)



## CHOOSING A... VoIP Provider

Follow the steps to find your ideal specs

SERVICE TYPE: PC

COST PER MONTH: Free

FREE CALLS: Other users only

STANDARD TELEPHONE CALLS: From around 1p per minute

Recommended minimum in grey

**1** You need to choose the kind of service that best suits your needs. An application with the minimum specifications listed above requires a computer in order to work. This means you can install it on a notebook and carry it around with you, which is handy for travellers. These applications are available from Skype, Microsoft, Tiscali and Tesco. If you're looking for a replacement home phone, you need to sign up for a fixed VoIP line instead, such as those provided by Vonage and BT.

**2** With an application on your PC, you can see when your friends are online and make free phone calls to users of the same service anywhere in the world. If you want to call a traditional landline, you can use a service such as SkypeOut, but you'll need to buy credits. Call costs vary between countries, so check the current pricing and pick the service that provides you with the best deal. Calls to most developed countries should cost around 1p per minute.

If you want to receive phone calls, you'll need to buy a telephone number with Skypeln, for example. There is usually a monthly charge.

**3** A fixed VoIP service works like a traditional phone. A basic service costs around £8 per month, but you get a telephone number and free UK landline calls. You also get free VoIP calls to any user of the same service, although it's hard to tell who uses which service as you just dial normal telephone numbers and they give no indication of the service to which they belong. Pick the service that best fits your needs; if you make a lot of foreign calls, you should go with the one that offers the cheapest calls to the countries you call most often.

**4** A fixed VoIP service should come with a telephone adaptor so you can use your existing telephone and answerphone with it. Look for an adaptor that also connects to your existing telephone line, so your friends can still call you without having to learn a new number. Your old line is also useful as a backup and for making emergency calls.